



Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 4296-4 (2002): TOOLS FOR PRESSING, Part 4: ROUND PUNCHES WITH 60 ° CONICAL HEAD AND REDUCED SHANK [PGD 4: Metal Forming Machines]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

Invent a New India Using Knowledge



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



PROTECTED BY COPYRIGHT

IS 4296 (Part 4) : 2002
ISO 9181 : 1990

भारतीय मानक
दाबन के औजार
भाग 4 60° शंक्वाकार शीर्ष तथा लघुंतर शैंक वाले गोल पंच
(पहला पुनरीक्षण)

Indian Standard
TOOLS FOR PRESSING
PART 4 ROUND PUNCHES WITH 60°
CONICAL HEAD AND REDUCED SHANK
(*First Revision*)

ICS 25.120.10

© BIS 2002

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

NATIONAL FOREWORD

This Indian Standard (Part 4) (First Revision) which is identical with ISO 9181 : 1990 'Tools for pressing — Round punches with 60° conical head and reduced shank' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Metal Forming Machines Sectional Committee and approval of the Basic and Production Engineering Division Council.

Due to increased volume of work being done on hand-operated and power-operated presses in the country, it had created a need for the standardization of tooling elements for use on such machines. Much of the work produced by press working tools necessitates the piercing of holes. To fulfill this need, this Indian Standard was first published in 1967 to cover the general requirements for round piercing punches up to 14.4 mm effective diameter for making round holes.

Subsequently in the passage of time, many changes have been introduced in the industry to suit the need of the user industries. To bring these changes in this standard, the standard has been revised to brought out in four parts. The following major changes have been made:

- a) Types A and B of round piercing punches without head have been deleted as these are no longer in use from IS 4296.
- b) Round punches with cylindrical head with straight shank and cylindrical head with reduced shank have been included and are covered in Parts 2 and 3 of this standard.
- c) Dimensions of Types D and C have been thoroughly modified and are covered in Parts 1 and 4.

In this part of the standard, Type C 'Shouldered Punch with Head' are covered as per the earlier version of IS 4296.

The main use of punches defined in this standard is for punching holes in steel sheet. They may also be used for punching holes in other materials.

Other three parts of this standard with main title as 'Tools for pressing' are:

- Part 1 Round punches with 60° conical head and straight shank (*first revision*)
- Part 2 Round punches with cylindrical head and reduced shank
- Part 3 Round punches with cylindrical head and straight shank

The text of the ISO Standard has been approved as suitable for publication as Indian Standard with small deviations that radius indicated in the figure has been modified to read as radius should be grounded to remove tool marks.

Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard
TOOLS FOR PRESSING
**PART 4 ROUND PUNCHES WITH 60°
CONICAL HEAD AND REDUCED SHANK**
(First Revision)

1 Scope

This International Standard specifies the dimensions and tolerances, in millimetres, for round punches with 60° conical head and reduced shank, having shank diameters D_1 of 2 mm or 3 mm.

It gives examples of materials and hardness, and specifies the designation of punches which meet the requirements of this International Standard.

The main use of punches defined in this International Standard is for punching holes in steel sheet. They may also be used for punching holes in other materials.

2 Dimensions

See figure 1 and table 1

3 Material and hardness

The material is left to the manufacturer's discretion. The following hardness values are given as examples:

a) tool steel with 12 % Cr:

- point: (62 ± 2) HRC
- head: (45 ± 5) HRC

b) high-speed steel:

- point: (64 ± 2) HRC
- head: (50 ± 5) HRC

4 Designation

A round punch with 60° conical head and reduced shank in accordance with this International Standard shall be designated by

- a) "Round punch with conical head";
- b) reference to this International Standard;
- c) its shank diameter, D_1 ;
- d) its point diameter, D_3 ;
- e) its total length, l .

EXAMPLE

The designation for a round punch with 60° conical head and reduced shank, of shank diameter $D_1 = 2$ mm, point diameter $D_3 = 0.5$ mm and total length $l = 71$ mm is as follows:

Round punch with conical head ISO 9181 - 2 × 0.5 × 71

Surface roughness values in micrometres

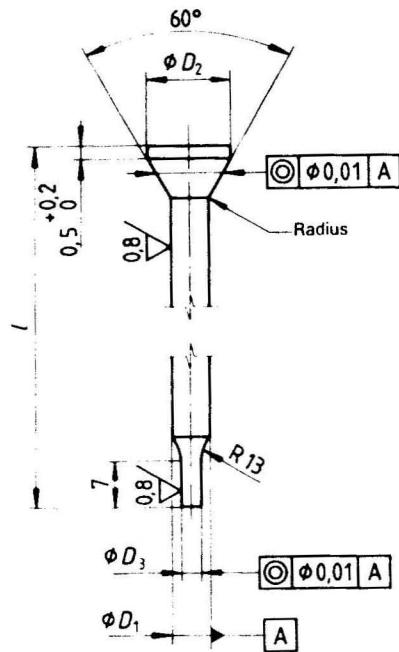


Figure 1

Table 1

D_1 h6	D_3 j6	D_2	l $+0.5$ 0	
			71	80
2	$0.5 \leq D_3 \leq 1.6$	3	x	x
3	$1.4 \leq D_3 \leq 2.9$	4.5	x	x

Annex A
(informative)

Bibliography

- [1] ISO 4957:1980, *Tool steels*.
- [2] ISO 6508:1986, *Metallic materials — Hardness test — Rockwell test (scales A - B - C - D - E - F - G - H - K)*.
- [3] ISO 6752:1984, *Round punches with 60 degrees conical head and straight shank*.
- [4] ISO 8695:1987, *Tools for pressing — Punches — Nomenclature and terminology*

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc : No. BP 04 (0229).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 323 01 31, 323 33 75, 323 94 02

Telegrams : Manaksansta
(Common to all offices)

Regional Offices :

		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	{ 323 76 17 323 38 41
Eastern	: 1/14 C.I.T. Scheme VII M. V. I. P. Road, Kankurgachi KOLKATA 700 054	{ 337 84 99, 337 85 61 337 86 26, 337 91 20
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160 022	{ 60 38 43 60 20 25
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600 113	{ 254 12 16, 254 14 42 254 25 19, 254 13 15
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400 093	{ 832 92 95, 832 78 58 832 78 91, 832 78 92
Branches	: AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. NALAGARH. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.	